Proteins of Cow's Milk Produced on Normal Feed and Feed Containing Urea and Ammonium Salts as the Sole Nitrogen Sources

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In feeding experiments in this laboratory it could be shown that production of cow's milk is possible with purified carbohydrates (starch, cellulose, sugar), urea, and ammonium salts as the sole nitrogen sources, and a salt mixture containing the 16 elements known to be essential[1]. Of the vitamins only A and D were included in the feed. The milk is called »O-milk» in this laboratory.

In earlier papers it was reported that the amino acid composition of the total proteins of the O-milk is the same as in milk produced on normal protein-rich feed (»normal milk»)[2,3]. New estimations with an automatic amino acid analyzer have confirmed this result.

We have fractionated the proteins in normal milk and O-milk using the method of Peterson and Sober[4], Sober *et al.*[5], Sober and Peterson[6], and Tarassuk and Yaguchi[7] with the difference that the DEAE-cellulose-column was coupled to a spectrophotometer (LKB-Unicord) (wave length 253 mμ) as well as to a recorder. The eluant was fed with a portionating pump, the flow rate being 10 ml/min.

The fractionation of the proteins of the O-milk and mixed milk produced on normal feed is shown in Fig. 1. It appears from the figure that the proteins of O-milk and normal

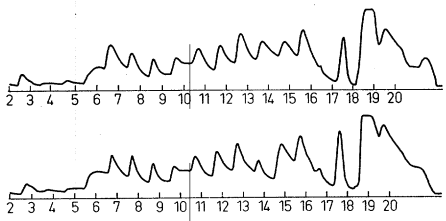

Fig. 1. Fractionation of the proteins of O-milk and mixed milk produced on normal feed. Above: O-milk, below: normal milk.

milk are the same when one considers the fractionation performed on a DEAE-column. Other methods of fractionation also will be used in further investigations.

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